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## SCIENCE:

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Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The "Exchange" column is likewise open.

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## AMERICAN PUBLIC HEALTH ASSOCIATION.

THE seventeenth annual convention of the American Public Health Association was opened Tuesday in the Brooklyn Institute. About two hundred members from all parts of this country and Canada were present.

The first paper was upon "The Overshading of Our Homes," by Dr. William Thornton Parker of Newport, R.I. It was read by Dr. C. A. Lindsley of New Haven. In the paper the writer said in part, "Overshading is a serious fault, and directly lessens the value of real estate, and noticeably increases disease and shortens life. Houses overshadowed are not healthful, no matter how commodious or well built they may be. This condition of overshadowing is very noticeable in our New England and Middle States towns. The white faces and sickly appearance of so many of our people are largely attributable to this cause, and suggest that medical men should call attention to the growing evil. Where houses are overshadowed, the nervous system also suffers, as well as the general bodily health." The discussion brought out clearly that this is a subject on which doctors disagree.

Dr. Lindsley said that it was his belief that the great number of trees in New Haven was unquestionably the cause of much malaria and other disease in that city. Dr. Henry P. Walcott of Massachusetts remarked that he had lived in a town as much shaded as New Haven, and found no harm from the great number of trees, but a direct benefit. Dr. George M. Sternberg, U.S.A., believed that many malarious places were redeemed by the planting of trees. Dr. Gilhon of Washington mentioned the fact that the Roman Campagna had been freed from malaria to a great degree

by the planting of eucalyptus trees. The swamps in California were dried in the same way.

The second paper, upon "Clothing in its Relation to Hygiene," was by Dr. James F. Hibberd of Richmond, Ind. His conclusions are that many persons dress too warmly, and thus induce disease. Most persons only regard the amount of clothing to be worn so that it should protect sufficiently against cold, and wholly disregard the effect of over-heating and thus disarranging the functions of the skin.

Dr. Hibberd maintained that an insufficiently clothed person was not the one who caught cold, but it was the overclad one who was most subject to it.

He summed up as follows: "It seems time that the relation of clothing to the health of the people of temperate climates engaged in civil industries should be reviewed, and the points for investigation may be summarized thus: viz., 1. The popular and professional estimate of the hygiene of the skin is much below its real importance; 2. The physiology of the skin cannot be largely interfered with without endangering the general health; 3. One of the influential factors in the sound health of man is to establish and maintain in his organization a resisting power to the causes of disease; 4. The tendency is to overdress, enervating the skin, and curtailing its power, and thereby the power of the whole system, to resist the causes of disease; 5. A proper exposure of the surface of the body to environing low temperature is a valuable general tonic; 6. Ventilation of the skin is indispensable to good health; 7. Habit may enable one to bear wide differences in clothing under similar surroundings without detriment, and this should impress the necessity of cultivating correct habits of dress.

A paper on "Causes and Prevention of Infant Mortality" was presented by Dr. Jerome Walker of Brooklyn. Dr. Walker finds from statistics that the common belief was not sustained that infant mortality in this country had decreased of late years. The hope of the future lies in a radical change, so that mere political doctors may not control the health boards, and in the sanitary education of the masses. The speaker said, "We may conclude from what is known of institutions for children, (1) that a large proportion of the deaths in them are preventable; (2) that the younger the children and the larger the number, the greater the mortality; (3) that the mortality can be lessened, but the decrease costs money, time, patience, and energy; and to obtain the best results the attending and resident physicians should be reliable, should be given control over all medical and sanitary matters, and should be held responsible for the same."

In the next paper, on "The Relations of the Dwellings of the Poor to Infant Mortality," by Alfred F. White, C.E., of Brooklyn, were quoted statistics to show that such institutions as the Peabody Association of London were needed here. Through the reforms thus instituted in tenement-house construction, the infant mortality of London had been reduced to 15 per cent of all deaths, while in this city it was 26 per cent.

Dr. George Homan of St. Louis, secretary of the Missouri State Board of Health, read a paper advocating the employment of better men as local health-officers at higher pay.

In the evening the delegates and their friends went to the Academy of Music. Dr. J. H. Raymond opened the exercises with a short address of welcome. Mayor Chapin welcomed the delegates on behalf of the city, and Dr. Hutchins performed a similar office for the medical profession. Then came the address of President Johnson. His purpose, he said, was to talk to the people, not to scientists. He said, —

"A death from typhoid-fever now means not so much a dispensation of Providence as it means foul water, foul food, or foul air. A city is decimated by a pestilence, and it is found that its foundations are honeycombed with cesspools, and its drinking-water is diluted sewage. The judgments of God, in the light of these revelations, become no more mysterious than the pains of the child that laughingly thrusts its tiny finger into the brilliant flame only to feel the terrible infliction that follows. There has come to be an enthusiasm in the medical profession on this subject which has made itself felt in various ways. This zeal has communicated itself to the public. An intelligent foundation has been laid for sanitary reforms.

"As typhoid-fever is a greater calamity than Texas fever, as Asiatic cholera is more to be dreaded than hog cholera, so do we need a department of public health more than a department of agriculture, a bureau of vital statistics more than a bureau of animal industry.

"The death-rate of twenty-six of the principal cities of America, with a population of 9,873,448, is 20 per 1,000. I think it morally certain that this rate could be reduced by means and methods now known to sanitary science to 16 per 1,000, and probably still less than that. The death-rate for London for the year 1888 was 18.5 per 1,000. This can be still further reduced. That of New York and Brooklyn for the same year, taken together, is 25.5 per 1,000; New York, 25.9; Brooklyn, 23.7. The death-rate of these two cities, if reduced to that of London, would secure a saving of 7 per 1,000, or annually 15,986 lives. These lives are public wealth.

"But this is not all. For one death annually two persons are sick during the entire year, or, in other words, there are two years of disabling sickness to one death, 31,972 years in New York and Brooklyn of sickness, preventable sickness, annually. The value of these years of sickness cannot be reached with accuracy; but the wages lost on account of sickness, the cost of care and maintenance during sickness and convalescence, and the money-value of the lives destroyed, considering them only as machines, will, in New York and Brooklyn, reach annually into the millions. I venture to suggest to the business-men of these cities that this loss is enough every year to buy a great railroad or to build and subsidize a fleet of ocean-going steel steamships."

The session continues through Friday, while the sanitary exhibition will continue for some weeks.

#### PROGRESS OF CHINA.

MR. R. S. GUNDRY read a paper on "Industrial and Commercial Progress in China" to the British Association last month. Premising that the wide differences in character and habits of thought between Europeans and the Chinese made it difficult to convey to an English audience an accurate impression of the situation, the paper, as reported in *The Scottish Geographical Magazine*, went on to sketch the leading features of Chinese industry and commerce in so far as they concerned, and had been affected by, foreign enterprise. Beginning to move at a time when she had been defeated in a foreign war, China's first efforts were to provide herself with the warlike material which experience had shown her to be so powerful: hence the early construction of arsenals and steamers. The beginnings of telegraphs, and the acceptance in principle of railways, were due also, in a measure, to warlike stress in connection with Kulja and Tongking; and mining was recognized largely as a means of providing for all this additional expenditure. But imperfection of knowledge, jealousy of foreign supervision, and a disorganized condition of finance, which involves venality and harassing taxation, retard a progressive movement, to which the *litterati* who constitute the mind of the nation are still as a body disinclined. The imperial finances, too, have been strained by a series of wars, rebellions, and disasters; and distrust of their officials prevents native capitalists from investing money in enterprises with which the officials persist in meddling. The great staples of tea and silk are severely menaced by the competition of India and Ceylon in the one case, and of southern Europe in the other; and the Chinese are slow to accept improved methods of preparation which would enable them to hold their own. China tea is heavily handicapped also by taxation, in competition with its duty-free rival. Fiscal hinderances, imperfect communications, and consequent cost of transport, have much to do with the slow development of trade. But the wide prevalence of domestic industry, and difficulties of exchange caused by the demonetization of silver, tend also to check the anticipated growth of demand for European manufactures. There seems every prospect that more railways will shortly be constructed, and that machinery will be tentatively admitted for purposes of industrial manufacture; but much time, a more widespread desire for progress, and radical financial reform, will be required before China is likely to rival Japan in the completeness of its transformation.

#### JADE IN BURMAH.

ACCORDING to a recent official report from Burmah, the jade-producing country is partly enclosed by the Chindwin and Uru Rivers, and lies between the 25th and 26th parallels of latitude. Jade is also found in the Myadaung district, and the most celebrated of all jade deposits is reported to be a large cliff overhanging the Chindwin, or a branch of that river, distant about eight or nine days' journey from the confluence of the Uru and Chindwin. Of this cliff, called by the Chinese traders "Nantclung," or "difficult of access," nothing is really known, as no traders have gone there for at least twenty years. Within the jade tract described above, small quantities of stone have been found at many places, and abandoned quarries are numerous. The largest quarries now worked are situated in the country of the Merip Kachins. The largest mine is about 50 yards long, 40 broad, and 20 deep. The season for jade operations begins in November, and lasts till May. The most productive quarries are generally flooded, and the labor of quarrying is much increased thereby. In February and March, when the floor of the pit can be kept dry for a few hours by baling, immense fires are lighted at the base of the stone. A careful watch is then kept in a tremendous heat to detect the first signs of splitting. When this occurs, the Kachins attack the stone with pickaxes and hammers, or detach portions by hauling on levers inserted in the cracks. The heat is almost insupportable, the labor severe, and the mortality among the workers is high. The Kachins claim the exclusive right of working the quarries, and there is not much disposition on the part of others to interfere. Traders content themselves with buying the stone from the Kachins. The jade is then taken by Shan and Kachin coolies to Namia Kyank-seik, one long day's journey from Tomo. Thence it is carried by dug-outs down a small stream, which flows into the Tudaw River, about three miles below Sakaw, and down the Tudaw River itself to Mogaung.

#### MENTAL SCIENCE.

##### New Experiments upon the Time-Relations of Mental Processes.

IN the preceding issue of this department an account was given of certain experiments measuring the time of re-action to words, both simply and when the movements of the five fingers were associated respectively with five words or five general classes of words. The results revealed a striking difference, according as the attention is directed to the sensory factors of the process and their appreciation, or the motor factors and their execution. The latter is a much briefer act, and seems to require a quite different series of mental processes from the former. To the theories explaining these and other facts we shall recur in this study. Dr. Münsterberg continues the work by applying similar methods to the study of association, judgments, and in general more complex operations.

I. As the more mechanical process in every association consists in hearing and understanding a spoken word and in speaking a word, we can easiest measure how much time is needed to accomplish this part of the process by measuring the time intervening between the speaking of a word by the experimenter and the repetition by the subject. Throughout this study there are two subjects, M and R; and in addition to the time there is given in parentheses the average variation,  $v$ , which marks the relative constancy, regularity of the process measured. As the words used in later experiments were both monosyllables and others, these were introduced at the outset, care being taken by the experimenter when calling a polysyllabic word to press the key in speaking the last (or the last accented) syllable, and by the subject always to press the key when speaking the first syllable of his reply-word. The simple repetition of a word, then, was accomplished by M in .403 of a second ( $v$ , .060); by R, in .362 of a second ( $v$ , .070).

II. Here, instead of repeating the called word, one re-acts by calling as quickly as possible a word associated in any way whatever with the first; that is, an ordinary "association-time." M does this in .845 of a second ( $v$ , .140); R, in .948 of a second ( $v$ , .170). The shortest time was for "gold-silver" (.390 of a sec-